

WHAT IS CLAIMED IS:

1. An inhaler for delivery of medication from a single MDI canister, the MDI canister having a spray outlet, to the lungs of a patient after the patient actuates the MDI canister using the patient's hand and inhales the medication in one or more breaths through the patient's mouth, comprising:

a universal MDI canister receiving section;

a housing, the housing comprising an air inlet and an enclosed passage, wherein the universal canister receiving section allows the MDI canister spray outlet to be inserted into the housing, such that medication from the MDI canister enters the enclosed passage, when the MDI canister is actuated by the patient;

a chamber body comprising a housing mating end, a shell defining the chamber body, wherein the chamber body extends out from the housing, and a mouthpiece mating end, wherein the chamber body is fixedly attached to the housing at the housing mating end, and wherein the mouthpiece mating end comprises at least one exhaust port;

an inhalation valve, wherein the inhalation valve is fixed in the chamber body, wherein the inhalation valve allows inhalation of air by the patient, and wherein the inhalation valve blocks exhaled air from the patient from entering the chamber body;

a mouthpiece comprising a first end, wherein the first end is shaped to fit in the patient's mouth, and a distal end, opposed to the first end, and wherein the distal end is comprised of a flexible, elastic material, wherein the distal end elastically extends over the mouthpiece mating end and fixedly engages the mouthpiece mating end, wherein the flexible, elastic material of the distal end covers the at least one exhaust port of the mouthpiece mating end of the chamber body; and

an actuator lever having a lever arm and a distal end, wherein the distal end is pivotally mounted to the housing and wherein the lever arm opposes the chamber body, and wherein the actuator lever engages the single MDI canister, actuating the MDI canister, when the actuator lever is actuated by the patient's hand closing on the lever arm and the chamber body, wherein medication exits from the spray outlet of the MDI canister, enters the housing, and is drawn into the chamber body by the inhalation of the patient,

whereby it mixes with air, and flows through the mouthpiece, through the patient's mouth, and into the lungs of the patient in one or more breaths.

2. The inhaler of claim 1, wherein the inhalation valve comprises a diaphragm valve and a valve body, wherein the diaphragm valve opens during inhalation and closes against the valve body during exhalation, preventing exhaled air from entering the chamber body.
3. The inhaler of claim 1, wherein the flexible, elastic material of the distal end of the mouthpiece comprises at least one flexible tab, wherein the at least one flexible tab covers the at least one exhaust port during inhalation and deflects during exhalation by the patient, whereby exhaust air escapes from between the flexible, elastic material of the mouthpiece and the chamber body.
4. The inhaler of claim 3, wherein the exhalation pressure necessary to open the exhaust tap is less than 2 inches of water above ambient pressure.
5. The inhaler of claim 3, further comprising a retaining ring, wherein the retaining ring couples the mouthpiece to the chamber body.
6. A mouthpiece for a spacer with an exhalation valve mechanism for use by a patient to inhale medication in more than one breath, comprising:
a flexible, elastic material;
a first end; and
a distal end, wherein the distal end is shaped to fit the mouth of the patient, and wherein the first end is shaped to elastically and fixedly engage the spacer, and wherein air exhaled by the patient exits the mouthpiece by passing between the flexible, elastic material of the mouthpiece and the spacer.
7. The mouthpiece of claim 6, wherein the first end has at least one exhalation tab.

8. The mouthpiece of claim 6, wherein the flexible, elastic material is selected from the group of flexible, elastic materials consisting of silicone rubber, neoprene rubber, butyl rubber and latex.
9. The mouthpiece of claim 8, wherein the flexible elastic material is silicone rubber.
10. The mouthpiece of claim 9, wherein the thickness of the silicone rubber is selected to be in a range between 0.5 mm and 5 mm.
11. The mouthpiece of claim 9, wherein the exhaust pressure that causes air to escape from the mouthpiece is less than 2 inches of water above ambient pressure.
12. The mouthpiece of claim 6, wherein both the first end and the distal end are comprised of the flexible, elastic material, and wherein the flexible, elastic material of the patient end is thicker than the flexible, elastic material of the chamber body end.
13. The mouthpiece of claim 12, wherein the change in thickness occurs abruptly.
14. The mouthpiece of claim 12, wherein the change in thickness transitions over a distance of at least 1 cm.
15. An inhaler for delivery of medication from at least one MDI canister comprising the mouthpiece of claim 6.
16. An inhaler for delivery of medication from at least one canister to the lungs of a patient by inhalation through the patient's mouth, the at least one canister has a compression spray outlet, the inhaler comprising:
 - a cowling having a support structure, wherein the support structure has a first end, an opposite end, an inner surface, and an outer surface, wherein the opposite end of the support structure is open, allowing the patient to insert at least one canister into the

cowling, and wherein the shape of the inner surface of the cowling is selected to guide each canister into the first end, and to hold each canister in place within the cowling;

a housing, wherein the housing further comprises a chamber receiving section, a cowling receiving section, a support, a fresh air inlet, at least one compression spray outlet compression mechanism, and an enclosed passage, and wherein the cowling is fixedly seated in the cowling receiving section, and wherein the cowling receiving section has at least one cowling receiving section inlet port, and wherein, the compression spray outlet of the at least one canister extends through the corresponding cowling receiving section inlet port, and into the enclosed passage of the housing, and wherein the enclosed passage is defined by the surfaces of the housing and ends in the chamber receiving section, wherein the chamber receiving section is an opening in the housing;

an actuator lever having a lever arm and a distal end, wherein the distal end is pivotally mounted on the support of the housing, whereby the distal end engages at least one canister, when the actuator lever is depressed by the patient;

a mouthpiece comprising a first end, wherein the first end is shaped to fit in the patient's mouth and a distal end, opposed to the first end, and wherein the distal end is comprised of a flexible, elastic material;

a chamber further comprising a mouthpiece mating section, a chamber body and a housing mating section, wherein the housing mating section comprises a first opening in the chamber body, wherein the chamber body comprises a shell, and wherein the mouthpiece mating section comprises a second opening in the chamber body, and wherein the distal end of the mouthpiece engages the mouthpiece mating section of the chamber body, and wherein the housing mating section of the chamber engages the chamber receiving section of the housing, and wherein the chamber body opposes the actuator lever, whereby the patient can depress the actuator lever by squeezing the lever arm to the chamber body, and whereby the compression spray outlet of at least one canister is activated, whereby medication enters into the enclosed passage of the housing and the chamber body, and whereby, when the patient inhales through the mouthpiece, fresh air enters the enclosed passage through the fresh air inlet of the housing, whereby the mixture of air and medication in the enclosed passage of the housing and the chamber body is drawn into the lungs of the patient.

17. The inhaler of claim 16, wherein the chamber further comprises a valve assembly, and wherein the valve assembly is fixed in the chamber body, and wherein the valve assembly opens during inhalation and closes against the valve body during exhalation, whereby medication and air are prevented from exiting through the valve assembly.

18. The inhaler of claim 17, wherein the valve assembly is fixed in the chamber body, and wherein the valve assembly comprises a diaphragm valve and a valve body, wherein the diaphragm valve opens during inhalation and closes against the valve body during exhalation, preventing exhaled air from entering the chamber body.

19. The inhaler of claim 17, wherein the mouthpiece mating section of the chamber body has at least one exhaust port, and wherein the flexible, elastic material of the distal end of the mouthpiece is selected to deflect at the at least one exhaust port during exhalation by the patient, whereby exhaust air escapes from between the flexible, elastic material of the mouthpiece and the chamber body during exhalation.